

**CLAIMS**

What is claimed is:

1. A method for operating a mobile station in a TDMA packet transfer mode with discontinuously transmitting neighbor cell control channel carriers, comprising steps of:

monitoring neighbor cell control channel carriers during TDMA frames by taking a received signal level measurement sample on at least one of the neighbor cell control channel carriers; and

for those control channel carriers on multislot allocations, when in a Traffic mode, taking at least four received signal level measurement samples per 52-multiframe, regardless of multislot class and traffic allocation..

2. A method for operating a mobile station in a Compact packet transfer mode with discontinuously transmitting neighbor cell control channels, comprising steps of:

when operating in a Traffic mode, and during Traffic frames, determining if the transmitter is off and, if it is, tuning a frequency source during the unused transmit timeslot for receiving a channel from a neighbor cell to make a measurement, or

if the neighbor cell is on the same frequency as the serving cell frequency, making the neighbor cell measurement without tuning the frequency source; and

during Traffic mode Idle frames, making at least four neighbor cell measurements per 52-multiframe.

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3. A method as in claim 2, wherein the neighbor cell control channels comprise a Broadcast Control Channel (BCCH) and a Compact Packet Broadcast Control Channel (CPBCCH).
4. A method as in claim 2, wherein the frequency source is comprised of a GSM frequency synthesizer having a settling time in the range of about 500 microseconds to about 600 microseconds.
5. A mobile station comprising an RF transmitter and an RF receiver that are tuned with a frequency synthesizer, and a data processor that is responsive to a stored program for operating said mobile station in a Compact packet transfer mode with discontinuously transmitting neighbor cell control channel carriers, said stored program directing the operation of said data processor, when operating in a Traffic mode during Traffic frames, to determine if the RF transmitter is off and, if it is, tuning said frequency synthesizer during the unused transmit timeslot for receiving a channel from a neighbor cell to make a measurement, or if the neighbor cell is on the same frequency as the serving cell frequency, making the neighbor cell measurement without tuning the frequency synthesizer, and during Traffic mode Idle frames, making at least four neighbor cell measurements per 52-multiframe.
6. A mobile station as in claim 5, wherein neighbor cell control channels comprise a Broadcast Control Channel (BCCH) carrier and a Compact Packet Broadcast Control Channel (CPBCCH) carrier.
7. A mobile station as in claim 5, wherein said frequency synthesizer has a settling time in the range of about 500 microseconds to about 600 microseconds.

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